

Appl. No. : 09/830,855
Filed : April 27, 2001

AMENDMENTS TO THE CLAIMS

1. **(Canceled)** A method of assaying an ore sample to determine the concentration of selected metals therein, comprising the steps of:
combining the prepared ore sample with a lead-containing flux in a receptacle;
inductively heating the combination to form a fusion of slag and lead, the lead collecting the metals in the sample; and
separating the lead from the slag.
2. **(Canceled)** The method according to claim 1 wherein the combination is heated at a predetermined temperature profile.
3. **(Canceled)** The method according to claim 2 wherein the predetermined reference temperature profile is determined by the characteristics and amount of the ore sample and/or the flux.
4. **(Canceled)** The method according to claim 3 wherein the sample is supplied with a high level of heat for a predetermined first period of time and then supplied with a lower level of heat for a predetermined second period of time to form the fusion of slag and lead.
5. **(Canceled)** The method according to Claim 1 wherein the sample of ore and flux are combined in a container made from carbon-based material, and the container, the sample and the flux are inductively heated.
6. **(Canceled)** The method according to claim 5 wherein the container is made from plastics material and comprises a lid which is arranged to close the container sealingly.
7. **(Canceled)** The method according to Claim 5 wherein the container includes identification means for identifying the sample contained therein.
8. **(Canceled)** The method according to claim 7 wherein the identification means is a barcode.
9. **(Canceled)** A method according to Claim 1 wherein the flux contains sodium hydroxide.
10. **(Canceled)** The method according to Claim 1 wherein the sample is heated inductively within a graphite receptacle in an induction furnace.
11. **(Canceled)** The method according to Claim 1 wherein the sample is heated inductively within a zirconium receptacle in an induction furnace.

Appl. No. : 09/830,855
Filed : April 27, 2001

12. **(Canceled)** The method according to Claim 1 wherein molten lead separated from the slag is poured into a chilled mould, to provide a solid lead button.

13. **(Canceled)** A method according to claim 5 including the steps of storing information on each sample on a central database, providing each container into which the sample is poured with a unique identification means identifying each container before inserting it into the induction furnace, correlating the identity of the container and information on the central database, and applying a predetermined reference temperature profile to the sample, according to the information on the sample stored in the database.

14. **(Canceled)** A method according to claim 13 wherein the identification means is a bar code and the bar code is identified with a scanner.

15. **(Canceled)** A method according to Claim 12 wherein each solid lead button is stamped with an identification code.

16. **(Currently Amended)** A receptacle for use in a method of assaying an ore sample according to Claim 1 separating molten lead from slag, the receptacle comprising a base with a side wall extending from the base, the side wall defining a top opening into the receptacle, and the side wall having a collecting cavity set into the side wall, wherein the collecting cavity is sized to collect a predetermined amount of molten lead.

17. **(Currently Amended)** A receptacle for use in a method of assaying an ore sample according to Claim 16 wherein the collecting cavity is located proximate the top opening of the receptacle.

18. **(Currently Amended)** A receptacle for use in a method of assaying an ore sample according to Claim 16 wherein barrier means is provided between the collecting cavity and the opening of the receptacle, to trap molten lead in the collecting cavity.

19. **(Currently Amended)** A receptacle for use in a method for assaying an ore sample according to Claim 16 wherein the collecting cavity is formed within a removable plug which is attachable to the side wall of the receptacle.

20. **(Currently Amended)** A receptacle for use in a method for assaying an ore sample according to Claim 16 including a first spout located at the top opening, above the collecting cavity.

Appl. No. : 09/830,855
Filed : April 27, 2001

21. **(Currently Amended)** A receptacle ~~for use in a method of assaying an ore sample~~ according to Claim 20 including a second spout located at the top opening, diametrically opposed to the first spout.

22. **(Currently Amended)** A receptacle ~~for use in a method of assaying an ore sample~~ according to Claim 16 wherein the receptacle is also a melting pot for an induction furnace.

23. **(Canceled)** A receptacle for use in a method of assaying an ore sample according Claim 16 made from graphite.

24. **(Currently Amended)** A method of separating molten lead from slag, in the receptacle of Claim 16, the method including the steps of:

~~1-(1)~~ introducing a slag with a predetermined amount of molten lead therein into the receptacle;

~~2-(2)~~ ~~rotating~~ turning the receptacle in a first direction toward the collecting cavity so that the molten lead fills and is retained within the cavity, ~~rotating and turning~~ the receptacle further so that the slag is discharged from the opening ~~to the receptacle~~;

(3) turning the receptacle in a second direction so that the molten lead flows out of the collecting cavity;

~~3(4)~~ ~~rotating~~ turning the receptacle further so that the molten lead flows out of the opening ~~to the receptacle~~; and

~~4-(5)~~ collecting the lead discharged from the opening ~~of the receptacle~~.

25. **(Currently Amended)** A method according to claim 24 wherein the receptacle is a melting pot surrounded by an electromagnetic coil and the electromagnetic coil is ~~rotated~~ turned together with the melting pot.

26. **(Canceled)** A flux composition for use in a method of assaying an ore sample according to Claim 1, the flux composition containing sodium hydroxide.

27. **(Canceled)** A flux composition for use in a method of assaying an ore sample according to Claim 26, comprising 20% to 60%, by weight, sodium hydroxide.

28. **(Canceled)** A flux composition for a method of assaying an ore sample according to Claim 26 further comprising:

Appl. No. : 09/830,855
Filed : April 27, 2001

29. **(Canceled)** A flux composition for use in a method of assaying an ore sample according to Claim 27 comprising 20% to 50%, by weight sodium hydroxide, 25% to 40% lead oxide and 25% to 40% borax.

30. **(Canceled)** A flux composition for use in a method of assaying an ore sample according to Claim 26 further including silver nitrate.

31. **(Canceled)** A sealed container, for use in a method of assaying in an ore sample according to Claim 5, the sealed container made from a carbon-based sodium carbonate.

32. **(Canceled)** A sealed container for use in a method of assaying an ore sample according to Claim 31 including a replaceable lid.

33. **(Canceled)** A sealed container for use in a method of assaying an ore sample according to Claim 31 made from a combustible material.

34. **(Canceled)** A sealed container for use in a method of assaying an ore sample according to Claim 33 made from a plastics material.

35. **(Canceled)** A sealed container for use in a method of assaying an ore sample according to Claim 34 made from a mixture of plastics material and a flux material.

36. **(Canceled)** A sealed container for use in a method of assaying an ore sample according to Claim 35 wherein the flux material is calcium carbonate.

37. **(Canceled)** A sealed container for use in a method of assaying an ore sample according to Claim 36, the mixture including 60 to 80%, by weight, calcium carbonate.